CLAIMS

1. A method for injection molding a layer of phase change material around a surface of each of a plurality of identical hard disc drive components comprising:

a) providing a plurality of identical hard disc drive components;

b) placing one of said plurality of identical hard disc drive components in a mold cavity of an injection molding machine having a controllable fill rate and a controllable injection pressure;

c) closing said mold cavity;

d) injecting a molten phase change material into said mold cavity at fill rates and injection pressures;

e) monitoring pressure in the mold cavity;

f) controlling the fill rate of said molten phase change material to obtain said hard disc drive component with the phase change material thereon; and

g) repeating steps b)-f) to produce said plurality of components each having a substantially uniform resonance spectrum.

2. The method of claim 1 wherein the pressure is monitored at a runner to the mold cavity, a beginning-of-fill point and an end-of-fill point.

3. The method of claim 1 further comprising the step of controlling the injection pressure of said molten phase change material to help obtain said hard

disc drive components with the phase change material thereon, having a substantially uniform resonance spectrum.

4. The method of claim 1 wherein the injection is carried out until predetermined beginning-of-fill and end-of-fill pressures are reached.

5. The method of claim 1 wherein the fill rate and injection pressure are controlled to produce a predetermined pressure gradient across the mold cavity.

6. The method of claim 5 wherein after said predetermined pressure gradient is obtained, said molten material is held in said mold cavity until said material cools and solidifies.

7. The method of claim 2 wherein the pressure at the end-of-fill point inside the mold cavity is measured by a pressure transducer associated with said end-of-fill point.

8. The method of claim 7 wherein the pressure transducer is located within the last ten percent of the cavity to fill with molten material.

9. The method of claim 2 wherein a pressure transducer is placed inside the mold cavity at the beginning-of-fill point.

10. The method of claim 9 wherein the pressure transducer is located within the first ten percent of the cavity to fill with molten material.

11. The method of claim 1 wherein a stroke sensor measures the fill rate of molten material.

12. The method of claim 7 wherein a controller controls the injection pressure based on signals transmitted by said pressure transducers to the

controller.

13. The method of claim 11 wherein a controller controls the fill rate based upon signals transmitted by said stroke sensor.

14. The method of claim 13 wherein the controller starts and stops the flow of molten material into said cavity by opening and closing a valve gate associated with said cavity.

15. The method of claim 1 wherein said one of said plurality of identical hard disc drive components are selected from the group consisting of spindle motors, voice coil motors, and wire wound motors.

16. The method of claim 1 wherein said identical hard disc drive components are electromagnetic devices.

17. The method of claim 1 wherein said injection of said molten phase change material has a maximum flow rate above about 25 cm^3/sec.

18. The method of claim 1 wherein said plurality of said hard disc drive components comprise at least one hundred components, said at least one hundred components having a median first order frequency and wherein each of said at least one hundred hard disc drive components with a phase change material thereon has a first order frequency that is within about three hundred Hertz of said median first order frequency.

19. The method of claim 18 wherein each of said at least one hundred hard disc drive components with a phase change material thereon has a first order frequency that is within about one hundred Hertz of said median first order frequency.